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QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.

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Appl. No.	:	10/572,696	Confirmation No. 5276
Applicant	:	Edith Gardiner, et al.	
371 Date:		October 5, 2006	
TC/A.U.	:	1646	
Examiner	:	Ruixiang Li	
Docket No.	:	42-000400US	
Customer No.	:	22798	
Client Ref No.:		127444	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO RESTRICTION REQUIREMENT

Sir:

In response to the Restriction Requirement, Applicants elect Group I (claim 106), including methods for determining modulators of Y receptor associated differentiation of a mesenchymal stem cell (MSC) or bone marrow stromal cell (BMSC) into an osteoblast-type cell. This response is made **with traverse**. Specifically Applicants respectfully request rejoinder of Group I with Group II (claim 107), relating to methods for determining modulators of Y receptor associated differentiation of MSC or BMSC into an adipocyte-type cell. In the event that the groups are rejoined, Applicants elect the resulting combined group.

TRAVERSAL OF RESTRICTION REQUIREMENT

Applicants respectfully submit that modulators of Y receptor associated differentiation of an MSC or BMSC into an osteoblast-type cell or an adipocyte-type cell are linked and, therefore, that claims 106 and 107 share unity of invention. As taught in the specification, MSC cells and BMSC cells "are capable of differentiating into adipocytes,

chondrocytes and osteoblasts" (page 66, lines 28 and 29). Accordingly, modulation of Y receptor associated differentiation of MSC or BMSC results in either production of adipocytes or bone cells, e.g., osteoblast-type cells.

Applicants have clearly shown that *in vivo* modulation of the activity of a variety of neuropeptide Y receptors (or combinations thereof), causes a significant change in bone remodeling (see, for example, Figures 16 and 17 that show significant increases in trabecular bone volume and trabecular bone thickness in mice with reduced Y receptor activity). The increased bone remodeling activity observed in animal subjects in which Y receptor activity is modulated is associated with increased osteoblastic bone formation rate (as shown, for example at page 85, lines 19 and 20; Table 2; and Figure 9B). Accordingly, increased neuropeptide Y receptor associated bone remodeling appears to be associated with increased osteoblast production.

Furthermore, Applicants have demonstrated that mice with reduced neuropeptide Y receptor activity have significantly reduced body weight, and this decrease in body weight is associated with a reduction in the amount of brown and white adipose tissue (i.e., adipose cells) (page 96, line 24 to page 97, line 2 and Figure 23).

Based on the disclosure in the subject specification, it is apparent that modulation of the activity of one or more neuropeptide Y receptors in an animal subject results in modulation of bone remodeling and/or adiposity. Furthermore, because the cell types that are involved in each of these processes (osteoblasts are involved in bone remodeling and adipocytes are involved in adiposity) are both derived from the same source (i.e., MSC and/or BMSC) and Y receptor activity modulates MSC/BMSC differentiation, it is apparent that a modulator of Y receptor associated MSC/BMSC differentiation will affect bone remodeling and/or adiposity.

Accordingly, the claims of the present invention are clearly linked by the effect of Y receptor activity on the differentiation of a MSC and/or a BMSC into an osteoblast-type cell and/or an adipocyte-type cell.

Prior to the present invention it was unknown that neuropeptide Y receptor activity modulated MSC/BMSC differentiation into osteoblast-type cells and/or adipocyte-type cells Accordingly, the modulation of MSC/BMSC differentiation into osteoblast-type cells

and/or adipocyte-type cells by changes in Y receptor activity represents a special technical feature (i.e., an advance over the art) that links Group I and Group II claims.

For the foregoing reasons, Applicants respectfully submit that the present claims satisfy the requirements of unity of invention as set forth in Rule 13 PCT.

Furthermore, Applicants respectfully submit that because the specification clearly teaches a linkage between modulation of Y receptor signaling to induce differentiation into an adipocyte-type cell or an osteoblast-type cell, Group I and II claims are dependent. These inventions are also not distinct because, as discussed above, modulation of Y receptor associated differentiation ofMSC or BMSC will inherently result in either production of adipocytes or bone cells, e.g., osteoblast-type cells, i.e., the claimed methods are connected in their effect. Accordingly, we iterate our comments above that Group I and Group II claims define a single invention.

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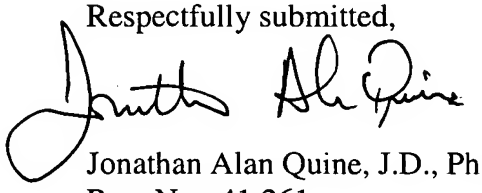
Respectfully submitted,



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Attachments:

1) A petition to extend the period of response for **3** months;
2) A transmittal sheet;
3) A fee transmittal sheet; and,
4) A receipt indication postcard.